3. When the intra-peritoneal plan has been followed, the peritoneal wound must be carefully closed with Lembert's suture, and the remaining part by ordinary interrupted suture. If this be not possible, the part of the wound outside the peritoneum should be stitched to the abdominal wall.

4. Silk is the best material for suture, and it should carefully exclude the mucous membrane.

RECENT CONTRIBUTIONS TO THE OPERATIVE RELIEF OF INTRA-CRANIAL CONDITIONS.

1. *Lucas Championnière.*—Trepanation pour hæmorrhagie cerebrale: Sérié de Trèpanations pour Accidents Divers. Par le Dr. Just Lucas Championnière, Paris.—*Journal de Medicine et de Chirurgie pratiques*, October, 1889.

2. *Cheyne.*—Case of Abscess of the left Temporo-sphenoidal lobe. Trephining. Recovery. By W. Watson Cheyne, F.R.C.S., London.—*British Medical Journal*, February 1, 1890.

3. *Milligan* and *Hare.*—Abscess in the Cerebellum. Trephining. Death. By Messrs. W. Milligan and A. W. Hare, Manchester.—*British Medical Journal*, February 1. 1890.

4. *Williamson.*—Multiple Cerebral Abscesses. Trephining. Death. By G. S. Williamson, Newcastle on Tyne.—*British Medical Journal*, February 1, 1890.

5. *Sheen.*—*a.* Huge Cerebral Abscess of Traumatic Origin. Trephining. Drainage. Death.

b. Brachial Monospasms with Jacksonian Epilepsy. Exploratory Trephining with Negative Results. By Dr. Sheen, Cardiff.—*British Medical Journal*, February 1, 1890,

I. *Dr. Lucas Championnière* reports thirty cases of trephining for the relief of various conditions, without a death or serious wound complication. The wound in the cranial wall left by the trephine does not cause the inconvenience which might be expected and there is no need of any protective appliance subsequently. For this reason he thinks that there is little importance to be attached to the reimplantation of the osseous discs. He makes the further point that in almost all affections of the meninges and of the brain the relaxation and depletion which is caused by the opening of the cranium can act only favorably, which

fact explains why, in many cases, where the seat of the lesion has not been reached, improvement has nevertheless been accomplished. Championniere has accordingly trephined in the following classes of cases:

Vertigo and headache.—Four patients, nine operations. Two patients were absolutely and permanently cured; one case trephined four times, is in a satisfactory state; one case trephined three times, has been much improved and has remained so for nearly two years. He is almost free from pain when he does not drink.

Violent pain consecutive to blows upon the cranium.—Two cases; permanent cure.

Incomplete hemiplegia with epileptiform crises.—One case; very great amelioration after the removal of a cranial hyperostosis.

Hydropcehalus.—One case with only temporary improvement.

Epilepsy following fracture of the cranium—Four cases, all of whom have been either improved or cured immediately. Positive data as to the ultimate results has not been obtained in all.

Epilepsy, idiopathic.—Eleven cases; the results were quite encouraging. All the cases were of a grave character; trephining was done without opening the membranes; in none was harm done; three cases were apparently cured, three were greatly improved.

Cerebral hæmorrhage, ancient.—One case, a man, æt. 53 years, primary attack of cerebral hæmorrhage twenty months before, leaving behind paresis of the right leg, marked limp, slight difficulty in speech, very marked contracture of the right hand, and epileptiform attacks, which latter were becoming worse. A diagnosis was made of a hæmorrhagic focus near the middle of the ascending frontal convolution, irritating the arm centre, the speech centre and the leg centre. As this man, being otherwise in good health, could not long survive on account of these sequelæ, an operation was determined upon to expose the clot and free the compressed and irritated parts. The operation was done February 7, 1889; cranium was trephined over the middle of the fissure of Rolando; orifice was enlarged till it measured $1\frac{1}{2}$ by $2\frac{3}{4}$ inches in extent; the dura mater having been reflected, the large vein which runs along the fissure of Rolando was exposed; in front of this

vein could be seen a kind of opaline membrane caused by the fusion of the arachnoid and the pia mater; this covered an old hæmorrhagic accumulation which occupied the substance of the ascending frontal convolution. The walls of this accumulation were carefully excised so as to open into it very freely; the reddish debris which filled it were removed, and the cavity was thoroughly cleansed by irrigations with carbolic acid and corrosive sublimate solutions. The dura mater was carefully fastened again into place by a point of suture, the wound in the scalp was sutured, a single drainage tube being left in. The operation occupied one hour and a quarter. Its after course was very simple. A brief epileptic attack occurred the next day, which caused the operator to take away the drainage tube. By the second day the contracture of the hand had passed away, and power in it had been regained in a large measure. As soon as the patient could rise, it was found that his gait was much improved. His speech was more distinct and his intelligence much greater. These results were permanent. A last epileptiform attack occurred two months after the operation. The report was made six months after the operation.

II. Mr. Cheyne reports a case of a man, æt. 26 years, who had suffered from a chronic suppurative discharge from the left ear for seven or eight years. Came under observation September 11, 1889, with acute symptoms. Twice previously, he had such an attack which lasted each time about two weeks. Both attacks passed off without any special treatment. Four days before admission had some pain in left temporal region and next day two rigors.

On admission the patient complained of dull aching pain in temporal fossa, is perfectly rational, speech is not slow, pupils equal and react, no optic neuritis. Tympanic membrane destroyed and polypi springing from its posterior attachment; hearing much diminished; the painful area in temporal region is also tender to pressure. Temperature 99°, pulse 56. Tongue brown and somewhat dry; lungs, heart and urine normal; bowels constipated; no emaciation.

After admission for four days no new development of note took place. On the evening of the fifth day the temperature went to 101.8°; patient began to moan and became delirious; vomited; slight twitch-

ing of left angle of mouth and left eyebrow; pupils equal and react; face flushed; tongue furred; mouth and lips dry. During next day temperature remained above 100° and pulse at 56; patient became more delirious. By the day following, September 16, twitching had become more marked; pulse 52, feeble and irregular, and temperature, 100.6°; and retention of urine. During afternoon became more quiet.

In afternoon had a severe rigor; pulse 50, very feeble, and temperature 101.2°.

Operation.—Chloroform administered. Now right pupil became contracted, while left remained in a state of medium dilatation. A trephine opening, one inch, was made an inch and a quarter behind the centre of the auditory meatus, and the same distance above the base line. Dura bulged out; no brain pulsation; meningitis. Needle passed inward and forward about half an inch was followed by a spurt of thin, *intensely* fœtid pus. Opening in brain enlarged, pus evacuated, cavity curetted, silver drain introduced and external wound closed.

Dressings were changed during night. Next day pulse 82, and temperature reached 102.2° in evening. Retention of urine remains, but since operation no further twitchings.

On second day wound looked well, discharge still very fœtid, pulse 84, temperature at 9 A.M. 98.8°. At 9 P.M. severe rigor, and at 9:20 temperature 104°. During day passed urine himself. Very restless and raving.

During the succeeding three days there was a progressive return of consciousness, but each day was marked by a rigor, with temperature varying from 98.8° to 103.4°. During the fourth day and thereafter, there were no rigors. On the fifth day the temperature became subnormal, pulse 97, very feeble and irregular. Right hemiopia; unconsciousness; more discharge from the ear, but very little from wound.

Sixth day. More drowsy, with increasing unconsciousness; pulse feeble, 80; temperature averaged 97.8°. Chloroform administered. Needle passed into brain failed to discover pus; mastoid cells opened but no pus found. No change in condition after operation.

Seventh day. Restless night; lies on right side; unconscious and ir-

ritable when touched. Pupils equal and react to light; no squinting; no facial paralysis. Pulse very feeble and compressible, 84 to 94. Temperature at 6 P. M. 101°; at 9 P.M. 99°.

Eighth day. Very restless; quite unconscious; partial ptosis of left side; no facial paralysis. Since morning has not moved right arm or leg; patellar and plantar reflexes very active on both sides; wound in good condition; temperature, 101.2°; pulse 84 to 96. No loss of sensation.

Eleventh day. Has improved since last note; has moved right arm and leg; ptosis has disappeared; sleeps better; takes nourishment; still unconscious; retention of urine, and not much discharge from the wound, but on moving the drainage tube which went into the brain, several drops of pus escaped. Eyes—left disc looks suspicious, like commencing neuritis; right also somewhat suspicious to the nasal side. Temperature, 97.8°, pulse 80 to 96.

Twelfth day. General improvement; passed urine himself; temperature averaged about normal.

Fourteenth day. Has continued to do well. At the time of dressing drainage tube was found pushed out. A pair of sinus forceps were introduced and when the blades were expanded a couple of drachms of pus came away. Drainage tube inserted.

From this time on the progress was favorable, and on October 25 the drainage tube was left out. On November 18 all wounds had healed, and on the 28th he was discharged; at that time "the patient was quite rational in his conversation, and takes an interest in everything about him. His speech is still somewhat slow, and a moment or two elapses before he replies to a question. His memory is also improving." There is also a good deal of discharge from the ear, and polypi are still present. Discs clearly seen. No present optic neuritis. Some pigmentation around discs at edges.

Mr. CHEYNE, in discussing the case, first raised the question as to whether he should have operated immediately on the patient's admission. He suspected abscess, but hardly thought the diagnosis was clear enough and the symptoms sufficiently severe to warrant trephining without further observation, especially as there was the septic discharge

from the ear. The cause of the rigors is not entirely clear. He first thought they indicated pyæmia, but this was shown not to be the case. There was no evidence of thrombosis of the lateral sinus. The diagnosis was also obscured by œdema of the scalp, due to a dressing of alembroth gauze.

The meaning of the temporary paralysis is also obscure. At first he thought it pointed to purulent lepto-meningitis, but now concludes it was due to a temporary congestion of the cortex in connection with the formation of the secondary collection of pus.

The second collection of pus he considers a new formation, and not a reaccumulation in the old pocket. He recommends the use of sinus forceps in searching for pus in the brain, in place of a hollow needle, as the latter is liable to become blocked by a plug of brain material.

III. The authors report the case of a boy, æt. 14 years, who had suffered for six years with chronic suppurative otitis media. The discharge from the left ear had disappeared eighteen months, and that from the right one week before coming under their care. The symptoms consisted of pain over the whole right side of the head, with other symptoms of intra-cranial irritation and pressure.

As the patient seemed to be in a serious condition, trephining was done just above and posterior to the external auditory meatus, so that the temporo-sphenoidal lobe and the cerebellum might be reached, as there were no distinctly localizing symptoms. After exposure of the dura, which appeared to be perfectly normal, a hollow needle was passed in various directions over the petrous portion of the temporal bone without finding anything abnormal. It was then pushed through the tentorium into the right lobe of the cerebellum, ond on withdrawal was found to contain pus and debris. The wound was then closed, and a second opening made below the line of the lateral sinus. Through this the abscess was easily found and emptied of about two drachms of fœtid pus. A drainage tube was then inserted.

Immediately after the operation all symptoms were improved and all progressed well for nineteen hours, when sudden development of Cheyne-Stokes respiration was followed by a rapid failure and death in three hours.

On post-mortem examination the entire brain seemed to be healthy with the exception of the small abscess cavity found in the cerebellum. There could be found no connection between this cavity and the disease of the ear.

In commenting upon the case the authors call attention to the unreliability of the statement that, if the tympanic cavity be the seat of original trouble, the secondary abscess will be in the cerebrum; if in the mastoid cells then in the cerebellum, and if in the internal ear then in the pons. They also think that the accepted frequency of cerebral abscess as compared with cerebellar, of 6 to 1, is too great. The question of the path taken by the infective material in this case they suggest may have been through the small venous and lymphatic channels between the middle ear, the subarachnoid fluid, and the perivascular lymphatic spaces of the cortex.

They also call attention to the need of more careful treatment of suppurative diseases of the ear, especially chronic. In cases where persistent and regular treatment fails they strongly urge that the mastoid cells should be trephined, all caseous matter cleared out and a thorough drainage of the tympanum established.

IV. Dr. Williamson reports a case of a boy, æt. 15 years, struck on the forehead by a rivet six months previous to his coming under his care. This was followed by loss of power in the right leg and arm and the development of fits, which began regularly by a peculiar sensation and twitching of the left side of the mouth. There was no loss of consciousness. He began to suffer from severe and continued headache and a marked sensitiveness of the skin. He became, steadily, more and more dull and stupid. Both eyes were turned to the right, questions were answered slowly and urine passed involuntarily. The left angle of the mouth twitched on the least touch. His general condition becoming critical trephining was done over the face centre. An abscess cavity was found beneath the opening, and cleaned out by spoon. Further exploration by the needle failed to discover pus anywhere else. All symptoms, except the dimness of vision, became somewhat better after the operation and remained so for about one week. His condition then began to grow worse and on the ninth day an exploring needle

was again passed into the brain but discovered no pus. Patient continued to sink and died on the ninth day after operatioo.

At the autopsy five abscesses were found in the braio; one in the lower part of the ascending frontal convolution (opeoed); one an inch higher up and a little in froot, in the posterior part of the middle frontal convolution, very superficial; another in the supramarginal gyrus, passing downward and forward in the first temporo-sphenoidal convolution and lower part of the ascending parieal; the largest was in the angular gyrus and posterior part of first temporo-sphenoidal and the fifth a mere focus of pus, in the middle of the second frontal convolu tion. At the point of injury was found a piece of oecrosed bone but no pus.

The author remarks that it was a question whether to cut down at the site of the original injury or over the face centre and the motor area but as there were no brain symptoms at the seat of the former and evidently a disturbance about the latter, this point was selected. He quotes Dr. Gowers as saying that he was not aware of any case in which a surgeon was entirely guided by the indications of cerebral localization in finding pus within the cranium and points out the fact that a little closer study of this case would have led him to localize other of the abscesses.

V. *a. Huge cerebral abscess of traumatic origin.*—Boy, æt. 12 years. Nine weeks after a blow upon the forehead presented anæmia and hemiplegic symptoms. Incontinence of urioe but not of fæces, double optic neuritis, pupils dilated equal, do not react to light. some ptosis and imperfect movements of left eyeball. Hearing is fairly good on both sides. Tactile sensation preseot, but blunted. Complete paralysis of right side of body. Right sided convulsions occurred. Cerebral abscess diagnosed and trephining done, one opening made to the outer side of the original wound. Through this opening a oeedle was passed and located pus in the motor area. A secood opening was made over the fissure of Rolando. Through this opening the abscess was found and ten drachms of pus evacuated; a drainage tube was ioserted and the parts brought together. Following operatioo there was a good deal of discharge through the tube; the syiuptoms were somewhat re-

lieved, the ptosis disappearing and some power returning in the arm and leg The discharge increased, hernia cerebri formed and after the sixth day the temperature began to go up and the boy died exhausted about three weeks after the operation.

Post mortem examination showed no meningitis. At the base of the brain was some greenish yellow pus. The left hemisphere was found to be a mere shell of brain substance and its lateral ventricle was practically a large abscess cavity. The right brain was healthy except for a little pus in the ventricle.

b. Brachial monospasm, with Jacksonian epilepsy.—Male, æt. 39 years, married. The fits begin at the left thumb and index finger and passing up the arm are often, but not always, accompanied by loss of consciousness. Arm during fit was drawn up over head, the fits lasted as long as eight minutes and there were so many as three a day. There was no specific history. There was some loss of power in left hand. The movements during the fits were very rapid and as the disease progressed a lesser convulsion of the right side developed. For a year or so he was kept on large doses of the iodide without any benefit.

As the symptoms pointed to a cerebral lesion, trephining was done a little anterior to the fissure of Rolando. After the button of bone was removed a scalpel was passed in various directions into the brain tissue with a negative result. The wound was then closed and healed by first intention. The patient was relieved for a week but after that the symptoms returned again, as bad as ever, and the patient was finally removed to the insane asylum. After admission to the asylum he continued to have fits, lasting from three to five minutes each, and between them the symptoms varied. H. B. DELATOUR.